Student Experience of Gamified Learning: A Qualitative Approach

Andrew James Clements[1], Sajeel Ahmed[2], Bernadette Henderson[3]

[1]School of Psychology, University of Bedfordshire, Luton, United Kingdom

[2]School of Business, University of Bedfordshire, Luton, United Kingdom

[3]School of Healthcare Practice, University of Bedfordshire, Luton, United Kingdom

Andrew.clements@beds.ac.uk
Sajeel.Ahmed@beds.ac.uk
Bernadette.Henderson@beds.ac.uk

Abstract: Student engagement and student outcomes in Higher Education continue to be the subject of academic concern, and thus receive research attention. To address these concerns, we aim to explore the use of gamification to enhance student engagement, and thereby improving student learning and performance. Gamification represents the use of game elements to enhance engagement in activities such as learning. This paper highlights the use of game elements such as: leader boards, scores for activities, and multiplayer (group) activities. The paper does this by exploring students' learning journeys, as well as their experience of modules in which gamification had been introduced. Group-based competitive activities were introduced to modules undertaken by business students, student nurses, and paramedic students. Students undertaking these modules were invited to participate in semi-structured interviews. Twelve students drawn from the three disciplines took part in these semi-structured interviews, which were digitally recorded to enable production of accurate transcripts. Thematic analysis was used to identify key themes from the interviews. To explain student responses and their learning experience, four themes were developed; challenge, difference, group processes, and competition. Students often presented themselves as enjoying challenge, although this was sometimes contrasted with enjoyment of 'easy' activities. Challenge was presented not only as a motivational factor, but also sometimes as a barrier to success. This sense of challenge was often conceptually linked to students' perception of difference within their gamified learning, which was pedagogically distinct from their typical learning experience. Most, but not all, expressed positive views of this difference. As with the theme of challenge, discussion of difference could be both positive and negative. Participants highlighted competition as a positive factor. The competition between groups influenced some group processes. Some students noted previous challenges involved in group-work, such as unequal work distribution. Participants observed the potential for intra-group friction, while identifying the positive learning outcomes of group work. Taken together, the analysis suggests that competitive group work is a beneficial strategy for enhancing student engagement and performance.

Keywords: Gamification, group work, Higher Education, pedagogy, student engagement

Introduction

The Higher Education sector is facing many challenges, which arguably includes the issue of student engagement (Kahn, 2014; Kahu, 2013; Masika and Jones, 2016), although this claim has been critiqued (see Gourlay, 2015; Zepke, 2014). Some have argued that student engagement is a challenge as a result of mass attendance of Higher Education for example, as a consequence of the large class sizes associated with this trend (Hornsby and Osman, 2014). Across the world, Higher Education has become a mass participation system (Marginson, 2016). In association with this development, policy discourse positions students in Higher Education as 'consumers' (Hunter, 2013; Naidoo, Shankar, and Veer, 2011). However, while there are

concerns about the impact this has on educational quality, e.g. in terms of grade inflation, it has also been argued that consumerism in Higher Education is bound up with accountability (Murphy, 2011). While there are concerns that students are more instrumental and less engaged with learning, research by Millican (2014) suggests that students simultaneously possess desires to be challenged and gain experience. Taken together, it can be seen that the nature of the challenge is not simple, but instead calls for educators to think critically about how students are engaged. It has also been claimed that the traditional model of Higher Education, emphasising lectures and tutorials appears outdated to current students who are used to accessing information rapidly in a variety of media (e.g. Culkin and Mallick, 2011). Higher Education institutes have adopted a range of approaches to adapt to this generation, such as blended learning, flipped classrooms, Massive Open Online Courses (MOOCs) and so on (Gibbs, Knapper, and Piccinin, 2009; Kubler and Sayers, 2010).

The present study focuses upon another pedagogic strategy to enhancing student engagement: gamification. Gamification was implemented at a UK university on a research methods module for business students, and a leadership, management and teamwork module for student nurses and paramedic students (the latter two hereafter referred to as 'healthcare students' unless a specific discipline must be named). Gamification essentially draws upon those features of games that engage players (and which lead to greater levels of time being willingly invested) to enhance engagement in other aspects of life (e.g. studies). Four key elements of gamification have been identified (Dickey, 2007, Landers and Callan, 2011, McClarty et al., 2012, Mead, 2010): the use of ranking tables enabling 'players; to compare their performance; narratives and socialisation that encourage immersion in the game environment; scaffolded learning with increasing challenges; and feedback that is both immediate and continuous. Gamified elements across the specified modules were integrated into the curriculum of specific modules, and included multiple game-based learning activities, such as a board game relating to ward management (for healthcare students), and quizzes. These took place during scheduled class time. Gamified approaches often incorporate competitive environments (e.g. Tenório et al, 2016). Students formed teams to participate in a competition for high scores. The use of scoring was underpinned by goal-setting theory (Locke and Latham, 1990), which suggests that individuals perform better when they are set specific and challenging goals. Feedback, in this intervention provided by points, gives individuals important cues for adjusting their performance (Bandura and Cervone, 1983; van Dijk and Kluger, 2011). Thus the use of scoring was expected to drive student engagement with the gamified modules. Scores for business students were managed using an online platform, which also hosted leader boards. Scores for healthcare students were managed manually.

The aim of the present study was to learn more about how gamification influenced students' engagement with learning by examining their learning narratives. Gamified pedagogy identifies the importance of narrative to encourage immersion. Understanding student narratives therefore has potential to help educators develop more engaging curriculum narratives. Our research questions were:

- How do students experience and understand their learning activities?
- How did gamification shape their understandings?

Method

Design: A qualitative approach was adopted in this study, making use of semi-structured interviews.

Participants:
Twelve students volunteered to take part in semi-structured interviews, thus representing a self-selected sample. Of these, six participants were enrolled on business programmes, five on nursing programmes, and one on a paramedic programme. All students participating were in their second year of study on undergraduate programmes of study, and were enrolled on modules in which the gamification strategy was being used as described above. Students represented a range of UK and international students.

Materials: An interview schedule was developed for the present study. Students were asked to describe their general experience of learning, and how this had changed; their perceptions and experiences of their current module; and their expectations of gamification, and whether this contrasted with their actual experience. Prompts were developed to gain a more thorough appreciation of student experiences.

Procedure:
Potential participants were told that the aim of the study was to explore how they experienced their learning, in order to help modify techniques used to engage students. Those students who agreed to participate were contacted by an interviewer to arrange an appropriate time to meet. Before the interview began, participants were provided with information sheets. In accordance with British Psychological Society (2009) research ethics, students were advised that all participation was voluntary, and that they could choose to withdraw from the study at any stage without consequence. Students were interviewed by members of the project team who were not involved in their teaching or in assessment of their work. Interviews were digitally recorded, and subsequently transcribed by members of the research team. Transcripts were stored on password protected computers. Data were thematically analysed following guidance by Braun and Clarke (2006), using NVivo 11.

Results

Four themes were identified from the data: challenge, difference, competition, and group processes. Students broadly referred to several challenges, some of which were linked to increasing demands in their studies. The novel aspect of gamification, represented in the difference theme, led to interest in most of the participants, but appeared to be a barrier for others. The competitive element was prized by several of the participants, and there were some indications that competition drove group behaviours in learning activities. This in part drove a desire to be part of a 'good' group. Where students were dissatisfied with group work, this tended to be linked with concerns about a lack of contributions from others.

Challenge

Challenge related to several aspects of participants' experiences. Firstly, all participants commented on the increase in demands that they had encountered, which they contrasted with their first year of study. Some demonstrated a perception that by comparison they had been 'spoon-fed' during the previous year. Participants noted the greater requirements placed upon them in general, in terms of being more independent and engaging in a greater quantity of self-directed learning. Students referred to the need to work hard to produce good quality work. Linked to this, students commented on the challenges of balancing the demands of multiple modules, with assignment deadlines occurring in close proximity to each other.

Similar to general challenges encountered in the progression through years of study, some students identified challenges related to the specific module in which a gamified pedagogy was adopted. This was generally reported by business students, who were enrolled on a research methods module. Business students generally identified the module as the most difficult they had encountered, with one suggesting that it was the most difficult in the university. The challenge of this module was often linked to features different to the students' typical experience. This will be discussed further within the 'different' theme.

Students also referred to challenges occurring outside of their education, but which had an impact on their ability to engage with studies. Some students referred to family responsibilities, which could be associated with financial concerns. One student noted the impact of experiencing a death in their family, whilst describing a sense of needing to avoid this affecting their ability to complete assignments, to fulfil the perceived expectations of the deceased. It is perhaps useful to note that when talking about challenges, students typically discussed their educational experience in the broadest sense, rather than to specific challenges linked to gamified activities.

While challenges were usually discussed in terms of demands placed upon students, which could pose a threat to wellbeing, challenge was also presented in motivational terms. Several students referred to the challenges they encountered as motivating them. For example:

"I really enjoy this [module]. It's something new…it is very… the only word I can say to describe this [module] is it's very intense… so for me, I am up for the challenge."
Business student

This positive talk was linked by some students to personal growth; by encountering difficulties they had opportunities to discover the extent of their abilities, or develop their abilities either quantitatively (an increase in existing ability) or qualitatively (finding themselves able to do something that they could not before). Students talking about challenge in a positive way also presented a sense of resilience. For example, one student nurse referred to the experience of performing below expectations on an assignment:

"I think one of the low points was with regards an assignment… I did pass the assignment but I was expecting to get a better grade for it, so when I got the feedback I was a bit low but then I called the lecturer for the unit and discussed the [assignment]… So it was not just feeling low and do nothing about it, I just got up and said, 'you know what, maybe I didn't get what I was expecting, but my best wasn't good enough so I need to get better and work harder next time.'"
Student nurse

Interestingly, a small number of students who spoke about enjoying challenge also presented some indications of desiring less challenge, at least in some aspects of their learning. For example, one student who had discussed the importance of challenge for personal growth suggested that the research methods module might be improved by making it more 'basic,' i.e. easier to understand. Another expressed enjoyment of challenging puzzles, but shortly thereafter added that they found puzzles easy to solve. Thus, even within positive descriptions of challenge, a mixed picture emerged. Taken together, 'challenge' represented both positive and negative experiences, with sometimes a blurred boundary between the two. For example, negative experiences were sometimes linked to positive outcomes, such as personal growth, while positive talk suggests that students have preferences for particular forms of challenge.

Difference

All participants in this study compared the gamified module, and usually compared gamified activities, either with prior learning experiences, or with their expectations. Some students referred to differences that they noticed between years of study, but this has been discussed previously within the theme of challenge. Some students referred to expectations which were confounded, for better or worse, by their experience of the gamified unit, for example as more challenging than expected, or the unexpected departure from a traditional lecture format. It was typical for business students to identify their research methods module as more challenging than expected. Healthcare students enrolled on a leadership module often expressed an assumption that they would have encountered lectures on leadership, rather than focusing on identifying their own qualities. Some students explicitly referred to a lack of expectation in relation to gamified activities, for which they lacked a sufficient prior experience to form expectations.

In discussing their response to the gamified method to teaching and learning, students demonstrated a range of responses, both positive and negative. These responses were linked explicitly to the difference between the gamification and other approaches. The most frequent response was positive, commonly identifying the gamified approach as fun and engaging. For example:

"I thought it was quite fun, I already went in the mind set of saying, 'ooh that's different, that's gonna be fun, that's gonna be interesting,' so I think that [was my] thought process all the way through… all the way through I thought it was quite good."
Student nurse

In one case, a student nurse noted that she had not expected to enjoy the gamified approach, as a result of perceiving the learning approach as 'not serious.' While that student reported having enjoyed the approach and benefiting from it, this was not a universal reaction. Although all business students reported a positive response, some healthcare students reacted differently. One student nurse identified the gamified approach as explicitly outside her preferred methods of learning:

"I thought we were gonna have lectures on what leadership was and how to use it in practise... but it wasn't like that. We didn't have any lectures, and if that's the way I learn then... I lost interest because I didn't think I was learning anything."
Student nurse

This same student expressed scepticism that other students would learn from this approach, instead claiming that they enjoyed an opportunity not to engage in work. For another student, whose response was more mixed, particular gamified activities were identified as being more engaging. Here, difference could be both positive and negative for the same individual. What this theme highlighted was that differences in pedagogic strategies had the potential to disengage students whose preferences were for a different mode. By contrast, the novelty of the approach was appealing to many students, including some who were initially doubtful.

Competition

Five participants identified competition as a crucial element of their experience with the gamified pedagogy. All five identified competition as being motivational, and typically referred to the gamified element as creating a competitive atmosphere within their cohort. One student reported feeling more alert as a consequence of the competitive element. Another commented that there was a natural instinct to engage in a competition with friends. This was linked to awareness that points were distributed for performance within gamified activities. Business students had access to leader boards, and these appeared to support competitive behaviours:

"You get points, plus if your friends are participating you just always wanna compete for the sake of competing with them because it's fun… You see someone else or a friend is leading [on the leader board], you are challenged to try and beat them for the sake of just having a bit of fun with your friends."
Business student

One student nurse was critical of a gamified activity (a board game) because she perceived it as lacking this competitive element. She indicated, as others did, that competition was motivational, and identified a lack of it as weakening engagement in students:

"There was no end result to that game. When you play games, people become competitive and they wanna win and that means they take part in that game and when there's no end goal people just lose interest and they are not bothered. That's what happened in that game."
Student nurse

By contrast, other healthcare students had described the game positively, although it was not referred to explicitly as a competitive experience. One student referred to it as an opportunity for realising the extent of knowledge, while another referred to the opportunity to engage with the board game creatively, by redesigning it to fit the paramedic discipline.

The response to competitive elements, when individuals identified them, was positive. In one case a business student who was interviewed during the early stage of the research methods module reported not having heard about the competition element for a period of time, which therefore created a sense of confusion rather than motivation. An interesting pattern that emerged from discussion of the competitive element of the gamification strategy was the influence felt upon patterns of group relations. This is explored in our final theme.

Group processes

As discussed in 'competition', some business students referred to the desire to be in a 'good' group. This was presented in relation to performance within the competition; students reported wanting to work with 'serious' students, who would help the group perform well. While healthcare students did not refer to performance in the competition, students in healthcare gave indications that there could be good and bad groups, evidenced in how they discussed group work. The two student nurses who disliked group work made reference to inactive members of groups, who had to be pressured to participate in activities. Such individuals were seen as otherwise being unwilling to engage, but who would nevertheless benefit from group performance, which offended the participants' sense of equity. This negative view of groups was contested by some students who acknowledged the potential difficulty of groups. These students, both in business and healthcare programmes,

emphasised a professional perspective, namely that teamwork was a core element of work, and that inevitably this would sometimes involve working with people one dislikes.

Other students referred to group work more positively. This was noted by several as an engaging element of learning activities, in which individuals encouraged each other to get involved, and provided affirming feedback. This appeared to emerge from the learning activity, which apparently surprised some participants. For example, one student was surprised by how seriously a gamified activity was taken, while another found an activity becoming more fun than expected due to group encouragement:

"We weren't happy just playing a [board] game, but actually when we were sat down and started playing it and starting to understand it, each of us were kind of pushing each other on to do better."
Paramedic student

Those students who presented group work as positive often noted that it enabled them to learn from peers. This was often linked by students to the value of working with relative strangers, forcing students to work outside their comfort zone, and creating the opportunity to work with people who were different from themselves, e.g. in personality or approaches to learning. While this was identified as a positive feature, some students did observe the potential for poor interpersonal relations to develop, e.g. due to 'personality clash.'

Taken together, group-based gamified activities appeared to provide the opportunity to be engaged and to learn from others, which for some was driven by the competitive nature of this pedagogic strategy. However, the opportunities could also be seen as risks, in which groups including inactive members may disengage students, and the presence of difference in groups may result in conflict as well as learning opportunities.

Discussion

Students' narratives of their learning emphasised challenge both in the sense of obstacles to be overcome, but also in the sense of opportunities for growth. Past motivation research suggests that an orientation towards seeking challenge as a means for growth is associated with better engagement and performance (e.g. Donovan, 2009). In line with these findings, we suggest that drawing upon students' narratives of challenge is key to student engagement. Despite concerns that students may be instrumental, there is still evidence that students seek challenge as well as 'value for money' (Millican, 2014). Our results suggest that competitive features of gamification may produce the desired engagement in students. However, it also became clear that the competitive element was not equally apparent to all students, one of whom perceived a lack of competitive goal and another who did not perceive an ongoing narrative of competition. Therefore it should not be taken for granted that the design features of gamified pedagogy will be always apparent to students. Further research may be needed to explore the conditions under which competition is and is not perceived by students. The use of scores appeared to create an innate sense of competition for some, but not all students. One possible explanation lies in reward salience, the notion that rewards have a greater impact when people are aware of them, and when those rewards matter to the individuals who may receive them (e.g. Deci, Koestner, and Ryan, 1999). When students are not aware or reminded of the leader boards, the competitive element may be absent for some. However, we should also consider the possibility that the presence of leader boards may not be a crucial element of competition for all students. This issue should be explored in more detail to identify ways in which particular gamification pedagogies must adapt to particular disciplines. In considering the motivational features of the gamified approach, we must also consider the seriousness which students attach to game-based learning. It became apparent that assumptions about the nature of games presented potential barriers for some students, although the majority overcame initial assumptions about the appropriateness of the pedagogic strategy. One student retained a persistently negative attitude to non-traditional forms of learning, and believed that she represented a number of other students. We will consider the issue of representativeness later in this section. For now, we suggest that it will be important for future research to examine which students respond positively or negatively to gamification, and why. The perceived seriousness of games, and their distance from pedagogic norms, would be a useful starting point. In practice, some students may require greater support in finding value within gamified learning.

Group-based activities were central to the gamified pedagogic strategy used in the present project. Our findings suggest that group activities contribute to the motivational aspect of gamification, but also had intrinsic pedagogic value. Students generally indicated that they learned much from others, particularly when they were forced to work with relative strangers. For the business students, who appeared more aware of the leader boards, the competitive element was associated not only with engagement, but a wish to seek a good group. The desire to be selective about group membership may present a barrier to engagement, as was seen with those students who perceived their groups as lacking engagement. Conflict over a lack of team engagement, representing social loafing (see Karau and Williams, 1993), may impact students. Similarly, concerns were expressed relating to conflict resulting from individual differences. Educators implementing group activities as part of gamification may need to manage the interpersonal relations of students, although it should be noted that evidence suggests moderate levels of group conflict can enhance accuracy in groups' perceptions of their own performance, and may result in greater performance as a result (Breugst et al, 2012; Gibson, Cooper, and Conger, 2009).

Some caution must be taken with our results. As a qualitative study requiring considerable time from participants, it is likely that students volunteering to participate may represent those who are more engaged (Braun and Clarke, 2013). We should not assume that the views of participants, positive or negative, necessarily represent those of their peers who are less engaged. Those who have perceived gamification more positively may be more motivated to participate in research designed to evaluate the strategy, while students who are especially dissatisfied may be motivated to participate to provide their perspective. Disengaged students, on the other hand, are likely to be difficult to recruit for research. While our findings, therefore, are not presented as easily generalizable, we argue that the thematic analysis has provided useful insights that may shape research and practice in gamified pedagogic strategies.

We conclude by saying that while gamification offers pedagogical opportunities, attention must be directed towards those who may not be 'ready' to engage, for example relating to preferences for other pedagogic approaches. Group dynamics must also be considered, as groups may be sources of both motivation and demotivation. While group differences and competitive dynamics may present potential sources of group conflict, it is also these processes that are key to engagement in the gamified approach discussed. Therefore, to use a gamified pedagogy may require educators and students who are willing to recognise, engage with, and effectively manage risk.

References

Bandura, A., and Cervone, D. (1983) Self-evaluative and self-efficacy mechanisms governing the motivational effects of goal systems, *Journal of Personality & Social Psychology*, Vol. 45, No. 5, 1017-1028

Braun, V., and Clarke, V. (2006) Using thematic analysis in psychology, *Qualitative Research in Psychology*, Vol. 3, No. 2, 77-101

Braun, V., and Clarke, V. (2013) *Successful qualitative research*, SAGE Publications, London

Breugst, N., Patzelt, H., Shepherd, D.A., and Aguinis, H. (2012) Relationship conflict improves performance assessment accuracy: Evidence from a multilevel study, *Academy of Management Learning & Education*, Vol. 11, No. 2, 187-206

British Psychological Society (2009) *Code of Ethics and Conduct: Guidance published by the British Psychological Society*. British Psychological Society, Leicester

Culkin, N., and Mallick, S. (2011) Producing work-ready graduates, *International Journal of Market Research*, Vol. 53, No. 3, 347-368

Deci, E. L., Koestner, R., & Ryan, R. M. (1999) A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation, *Psychological Bulletin*, Vol. 125, No. 6, 627-668

Dickey, M. D. (2007) Game design and learning: A conjectural analysis of how massively multiple online role-playing games (MMORPGs) foster intrinsic motivation, *Educational Technology Research and Development,* Vol. 55, 253-273

Donovan, J.J. (2009) Antecedents of discrepancy production in an achievement setting, *Journal of Managerial Issues*, Vol. 21, No. 3, 402-420.

Gibbs, G., Knapper, C. and Piccinin, S. (2009) *Departmental Leadership of Teaching in Research-Intensive Environments*, Leadership Foundation for Higher Education, London

Gibson, C.B., Cooper, C.D., and Conger, J.A., (2009) Do you see what we see? The complex effects of perceptual distance between leaders and teams, *Journal of Applied Psychology*, Vol. 94, No. 1, 62-76

Gourlay, L. (2015) 'Student engagement' and the tyranny of participation, *Teaching In Higher Education*, Vol. 20, No. 4, 402-411

Hornsby, D. J., and Osman, R. (2014) Massification in higher education: large classes and student learning, *Higher Education*, Vol. 67, No. 6, 711-719

Hunter, C. (2013) Shifting themes in OECD country reviews of higher education, *Higher Education*, Vol. 66, No. 6, 707-723

Kahn, P. (2014) Theorising student engagement in higher education, *British Educational Research Journal*, Vol. 40, No. 6, 1005-1018

Kahu, E. (2013) Framing student engagement in higher education, *Studies In Higher Education*, Vol. 38, No. 5, 758-773

Karau, S.J. and Williams, K.D. (1993) Social loafing: A meta-analytic review and theoretical integration, *Journal of Personality and Social Psychology*, Vol. 65, No. 4, 681-706

Kubler, J. and Sayer, N. (2010) *Higher Education Futures: Key Themes and Implications for Leadership and Management*, Leadership Foundation for Higher Education, London

Landers, R. N. and Callan, R. C. (2011) Casual social games as serious games: The psychology of gamification in undergraduate education and employee training, in M. Ma, A. Oikonomou, and L.C. Jain (Eds.), *Serious games and edutainment applications,* Springer, London

Locke, E.A. and Latham, G.P. (1990) Work motivation and satisfaction: Light at the end of the tunnel, *Psychological Science*, Vol. 1, No. 4, 240-246

Marginson, S. (2016) High Participation Systems of Higher Education, *Journal of Higher Education*, Vol. 87, No. 2, 243-271

Masika, R., and Jones, J. (2016) Building student belonging and engagement: insights into higher education students' experiences of participating and learning together, *Teaching in Higher Education*, Vol. 21, No. 2, 138-150

Mcclarty, K. L., Orr, A., Frey, P. M., Dolan, R. P., Vassileva, V. and Mcvay, A. (2012) *A literature review of gaming in education*, available at http://images.pearsonassessments.com/Images/tmrs/Lit_Review_of_Gaming_in_Education.pdf

Mead, K. (2010) *Game-based Learning and Intrinsic Motivation*, unpublished manuscript*,* available at: *http://www.academia.edu/1137269/Game-based_Learning_and_Intrinsic_Motivation*

Murphy, M. (2011) Troubled by the past: history, identity and the university, *Journal of Higher Education Policy & Management*, Vol. 33, No. 5, 509-517

Millican, J. (2014) Higher education and student engagement: Implications for a new economic era, *Education and Training*, Vol. 56, No.7, 635-649

Naidoo, R., Shankar, A., and Veer, E. (2011) The consumerist turn in higher education: Policy aspirations and outcomes, *Journal of Marketing Management*, Vol. 27, Nos. 11-12, 1142-1162

Tenório, T., Bittencourt, I. I., Isotani, S., Pedro, A., & Ospina, P. (2016) A gamified peer assessment model for on-line learning environments in a competitive context, *Computers in Human Behavior*, Vol. 64, 247-263

van Dijk, D., and Kluger, A.N. (2011) Task type as a moderator of positive/negative feedback effects on motivation and performance: A regulatory focus perspective, Journal of Organizational Behavior, Vol. 32, 1084-1105

Zepke, N. (2014) Student engagement research in higher education: Questioning an academic orthodoxy, *Teaching In Higher Education*, Vol. 19, No. 6, 697-708